

CLAIMS

1. A vehicle drive-by-wire system, comprising:

a sensor that is configured to generate an output indicative of a driver requested setting of a first drive-by-wire function;

5 a function control module coupled to the sensor and providing an actuator command based at least in part on the output of the sensor;

a wireline communication link coupled to the function control module and configured to receive and transmit the actuator command;

a wireless communication link coupled to the function control module and configured to receive and transmit the actuator command;

10 a communication control unit coupled to the wireline communication link and the wireless communication link, the communication control unit configured to identify a failure of the wireline communication link to transmit the actuator command and further configured to redirect transmission of the actuator command over the
15 wireless communication link; and

an actuator coupled to the wireline communication link and the wireless communication link, the actuator configured to receive the actuator command from the wireless communication link unless the failure of the wireless communication link to transmit the actuator command
20 exists.

2. The vehicle drive-by-wire system of claim 1, wherein the communication control unit is configured to identify a failure of the wireless communication link to transmit the actuator command and further configured to implement a failsafe strategy if the failure of the wireline
5 communication link and the failure of the wireless communication link exist.

3. The vehicle drive-by-wire system of claim 1, wherein the wireless communication link comprises radio transceivers exchanging electromagnetic signals.

4. The vehicle drive-by-wire system of claim 1, wherein the communication control unit is configured to identify the failure by a transmitting test signal over the wireline communication link and receiving a predetermined acknowledgement in response to the transmitting the test signal.

5. The vehicle drive-by-wire system of claim 1, further comprising parallel wireline and wireless communication links between the at least one sensor and the function control module.

6. The vehicle drive-by-wire system of claim 1, wherein the function control module is a zone control module controlling multiple actuators in a common zone.

7. A vehicle drive-by-wire system, comprising:

a vehicle feature unit configured to provide an output derived from a driver manipulation an input to the vehicle feature unit;

a functional control module coupled to the vehicle feature unit and configured to receive and translate the output into actuator instructions;

an actuator coupled to the functional control module and configured to respond to the actuator instructions;

a wireline communication link that is configured to couple the functional control module and the actuator;

10 a wireless communication link that is configured to couple the functional control module and the actuator; and

a communication control unit that is configured to test the wireline communication link and the wireless communication link, the communication control unit further configured to redirect communication
15 between the functional control module and the actuator to the wireless communication link if the communication control unit detects a failure in the wireline communication link.

8. The vehicle drive-by-wire system of claim 7, wherein the communication control unit is configured to identify a failure of the wireless communication link to transmit the actuator command and further configured to implement a failsafe strategy if the failure of the wireline
5 communication link and the failure of the wireless communication link exist.

9. The vehicle drive-by-wire system of claim 7, wherein the wireless communication link employs radio transceivers.

10. The vehicle drive-by-wire system of claim 7, comprising multiple actuators controlled over the wireline communication link and the wireless communication link by the functional control module.

11. The vehicle drive-by-wire system of claim 7, wherein the function control module is a zone control module controlling multiple actuators in a common zone.

12. A method of operating a vehicle drive-by-wire system, comprising the steps of:

generating an output indicative of a driver requested setting of a first drive-by-wire function;

5 providing an actuator command based at least in part on the output;

testing a wireline communication link that is configured to transmit the actuator command to an actuator; and

10 enabling a wireless communication link to transmit the actuator command to the actuator if said testing of the wireline communication link indicates a failure in the wireline communication link.

13. The method of operating the vehicle drive-by-wire system of claim 9, further comprising setting an alarm if said testing of the wireline communication link indicates the failure in the wireline communication link.

14. The method of operating the vehicle drive-by-wire system of claim 7, further comprising the steps of:

testing the wireless communication link; and

5 initiating a failsafe strategy if the testing the wireless communication link indicates a failure in the wireless communication link and the testing the wireline communication link indicates the failure in the wireline communication link..

15. An automobile drive-by-wire system, comprising:

a sensor that is configured to generate an output indicative of a driver requested setting of a drive-by-wire function;

5 a zone control module coupled to the sensor and providing an actuator command based at least in part on the output of the sensor, the zone control module controlling multiple actuators in a common zone;

a wireline communication link coupled to the zone control module and configured to receive and transmit the actuator command;

10 a wireless communication link coupled to the zone control module and configured to receive and transmit the actuator command;

a communication control unit coupled to the wireline communication link and the wireless communication link, the communication control unit configured to:

15 identify a failure of the wireline communication link to transmit the actuator command;

redirect transmission of the actuator command over the wireless communication link;

identify a failure of the wireless communication link to transmit the actuator command; and

- 20 implement a failsafe strategy if the failure of the wireline communication link and the failure of the wireless communication link exist.

16. The automobile drive-by-wire system of claim 15, wherein the common zone is the front of an automobile.

17. The automobile drive-by-wire system of claim 15, wherein the drive-by-wire function is braking of an automobile.

18. The automobile drive-by-wire system of claim 15, wherein the drive-by-wire function is steering of an automobile.